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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,054	10/28/2003	Allan M. Fredholm	SP02-215	5918
22928	7590	07/17/2006	EXAMINER	
			LAZORCIK, JASON L	
CORNING INCORPORATED SP-TI-3-1 CORNING, NY 14831			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 07/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/696,054	FREDHOLM, ALLAN M.	
	Examiner	Art Unit	
	Jason L. Lazorcik	1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 10/28/2003.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 21-37 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) 13-20 and 28-37 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 28 October 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/28/2003.
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: _____.

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1 through 20 drawn to "A method for producing Sheets of Glass", classified in class 065, subclass 090.
- II. Claims 21 through 37, drawn to "An apparatus for Producing Sheets of glass", classified in class 065, subclass 253.

The inventions are distinct, each from the other because of the following reasons:

Inventions (II) and (I) are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus can be used in a materially different process such as forming a laminated plastic sheet. Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

During a telephone conversation with Christopher Nicastri on June 15, 2006 a provisional election was made with traverse to prosecute the invention of the method of producing sheets of glass, claims 1 through 20. Affirmation of this election must be made by applicant in replying to this Office action. Claims 21 through 37 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Objections

Claims 13 and 14 through 20, 28, and 29 are objected to because of the following informalities: Claim 13 line 2 contains a formatting error and should be amended to include an end bracket, ")", after "18b". Claim 14 contains a grammatical error in the reference to "any one of claims 1". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 through 20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 19 recite the limitation "said sheet of glass" in lines 13 and 32, respectively. There is insufficient antecedent basis for these limitations in the respective claims.

Claims 2 recites the limitation "said device or mechanism" in line 2 and Claims 28 and 29 recites the limitation "said guidance device or mechanism" in line 2 of each claim. There is insufficient antecedent basis for these limitations in the respective claims.

Claims 3, 14, and 17 recite the limitation "the sheet of glass in lines 2, 20, and 22, respectively. There is insufficient antecedent basis for these limitations in each of the respective claims.

Claim 10 recites the limitation "said guidance" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 20 recites the limitation "said two sheets of glass" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claims 6 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the limitation of "over a height" and the limitation of "with a height" are set forth in Claim 6 and Claim 7, respectively. Since no orientation was previously given for the elements within the process, the particular metes and bounds sought by the applicant in these claims are rendered indefinite. It is suggested that the applicant presents the immediate limitations in terms of a length or distance and not a height.

Claims 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the immediate claim sets forth the limitation "its surface temperature" in Line 11 without providing sufficient indication regarding upon which of said two surfaces (s1 or s2) the applicant intends to control said temperature. For this reason, the particular metes and bounds for which the applicant seeks patent protection are rendered unclear and indefinite.

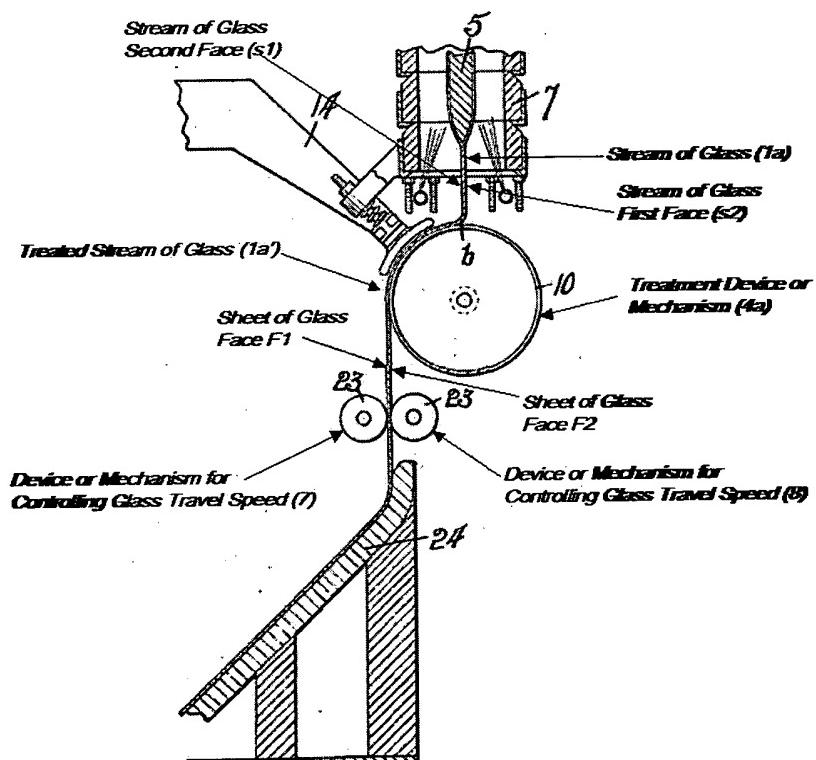
Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2, 6 through 9, and 11 through 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Danner (1,674,856). The particular elements of Danner that apply to the immediate claims are set forth with particular reference to the composite excerpt from Danner Figures 4 and 5 as presented below and as labeled in accord with the applicants terminology.



Specifically with respect to Claim 1, Danner teaches a method of producing sheets of glass wherein;

1. The sheet of glass has two faces, face (F1) and face (F2) wherein one side of said sheet (F1) presents a “hardened skin surface which will prevent it becoming marred”. In the context of the present claim this glass sheet presenting an unmarred, “hardened surface skin” is held equivalent to a sheet of glass with at least one of said faces presenting “a high surface quality”
2. A stream of glass (1a) delivered which has a first face (s2) and a second face (s1), and each face is free from making contact with any surface as evidenced in the region of the s1 and s2 lead lines by the above figure.
3. The first face (s2) of the stream of glass is placed into contact with a treatment device or mechanism (4a) while maintaining at least a central strip of the second face (s1) of the stream of glass (1a) free from any contact with any surface. The immediate reference indicates (pg 2, Line 53-54) that the sheet is deflected by the roll or “treatment device or mechanism (4a)” and passes around and down one side thereof which is understood as equivalent to the claimed process of supporting the weight of said glass and accompanying the falling movement of said glass. Further, while the glass is in contact with the “treatment device or mechanism (4a)” the second face (s1) of the glass sheet (1a) is cooled by an air blast nozzle. Since the inverse relationship between glass

temperature and viscosity is well established and the “treatment device or mechanism (4a)” cooperates in the cooling of the glass sheet”, said device increases the viscosity of the glass sheet. The “treatment device or mechanism (4a)” is therefore understood to both accompany “the falling of said glass while increasing glass viscosity” as claimed.

4. A device or mechanism for controlling glass travel speed (7,8) acts upon the treated stream (1a') (pg 3, Lines7-8)
5. The glass sheet is thereafter conveyed into a leer or annealing chamber which is understood to effect the “cooling of said sheet of glass” as claimed (pg 2, line 55)

Regarding Claim 2, the “treatment device or mechanism (4a)” aligns the treated stream of glass (1a') with and guides the treated stream of glass (1a') towards the device or mechanism for controlling the glass travel speed (7,8). As evidenced in the figure, said alignment and said guidance are provided while at least the central strip of the second face (s1) of the treated stream of glass (1a') is kept free from contact with any surface.

With respect to Claim 6, the applicant indicates (pg6, lines 22-27); “the height through which (the delivered flow of glass) can fall is naturally limited. It must be taken up before it becomes unstable. The acceptable gall height naturally depends on the glass in question. In general it does not exceed 150 millimeters (mm). Advantageously, it is less than 60 mm.

Given a particular glass, the person skilled in the art is perfectly

capable of optimizing this fall height, i.e. of implementing delivery of said glass."

"[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation."; see In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation (See In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)). In light of the applicants above disclosure, the fall height is deemed a result-effective variable. Since optimization of this result effective variable would be undertaken through routine experimentation, the immediate claim wherein the "delivered stream of glass (1a) remains free from any contact with any surface whatsoever over a height that does not exceed 150 mm" is anticipated by prior art.

Regarding Claim 7 and with particular reference to the above rejection of Claim 6, fall height is deemed a result effective variable and therefore a method wherein "said delivered stream of glass (1a) remains free from any contact with any surface with a height less than 60 mm" is anticipated by prior art.

With respect to Claim 8, the immediate reference indicates (pg 2, lines 122-125) that the roll 10 or "treatment device or mechanism (4a)" "may be driven in any suitable or convenient manner at a peripheral speed conforming to the speed of flow of the sheet b from the slab". It is therefore understood from the above figure that

1. the delivered stream of glass (1a) is received on the surface of a "treatment device or mechanism (4a)" as indicated in parent claims or a "roller (4a)" as indicated in the immediate claim.
2. The surface of said "roller (4a)" presents a surface temperature which is understood to be "suitable" for the desired process
3. The "roller (4a)" is driven or "rotated" as claimed at a suitable speed to accompany the movement of said stream or as indicated above at a speed conforming to the speed of flow of the sheet from the slab.
4. From the figure, it is evidenced that there exists no relative displacement of the stream (1a) relative to the surface of the "roller (4a)" and that contact between the stream and the roller is maintained over a "significant" fraction of the circumference of said "roller (4a)"
5. The roller is associated with a "Device or mechanism for controlling the surface temperature of the glass sheet" which in the above figure is understood as equivalent to the air-blast nozzle (14) as set forth by Danner (pg 2, lines 66-73). Further, Danner indicates (pg2, Lines82)that "the air blast...tends to quickly cool the outer side of the sheet and give it a glazed formation so that it will not be marred by coming into contact with a deflecting agent" which is understood in the present claim as cooling the glass sufficiently to obtain the desired increase in viscosity.

With respect to Claims 9/1 and 9/8 and with reference to the appropriate parent claim rejection, Danner indicates (pg 2, Lines 102-103) that " the sheet would be quite

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soft at its point of contact with the impression mold" or at the point that the sheet comes into contact with the roller (4a). Danner further indicates (pg 2, Lines 91-96) that after treatment on the roller (4a) the sheet has an "outer chilled or substantially hardened portion" and "an inner relatively softer figured side". And finally that after treatment on the roller (4a), the sheet is transferred to a leer or annealing chamber (pg 2, line 55). It is well established in the art of glass processing (Kingery, pg 759) that for a typical soda-lime-silica glass,

"In the melting range the viscosity is 50 to 500 P (poise); in the working range the viscosity is higher, being 10^4 to 10^8 P; in the annealing range the viscosity is still higher, being $10^{12.5}$ to $10^{13.5}$ P"

Since the treated sheet of glass (1a') is substantially but not completely hardened, the Danner process is understood in the context of the Kingery disclosure to produce a treated stream traditionally accepted to exist in the "working range". Therefore, the Danner process produces a treated stream (1a') at the end of the treatment presenting a viscosity in the range of about 10^4 P to 10^8 P which reads on the immediate claim of a viscosity in the range of about 10^4 to 10^7 P.

With respect to Claim 11, it is *implicitly* understood, although not expressly set forth, from the Danner disclosure that the process occurs under a gaseous atmosphere of some undisclosed nature. As such, the treated stream of glass (1a') is understood to be guided through said atmosphere of gas which is held

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equivalent to the claim of being guided "on a film" of gas or "between two films of gas".

Regarding Claim 12 and in the absence of any exceptional structural details to the contrary, the claimed rollers or wheels (17a and 17b) are held equivalent to the structure set forth in the specification as margin wheels (7) and tractor rollers (8) (specification pg 26, Lines26-29) and are therefore anticipated by prior art according to the rejection of Claim 1 above.

Regarding Claim 13 and with particular reference to the rejection of Claim 12 above, in the absence of any exceptional structural detail, the claimed rollers or wheels (17a,18a, 17b, and 18b) are held equivalent to the structure set forth in the specification as margin wheels (7) and tractor rollers (8) (specification pg 26, Lines26-29). Further, from the above figure, said rollers or wheels face each other on opposite sides of the treated stream of glass (1a').

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

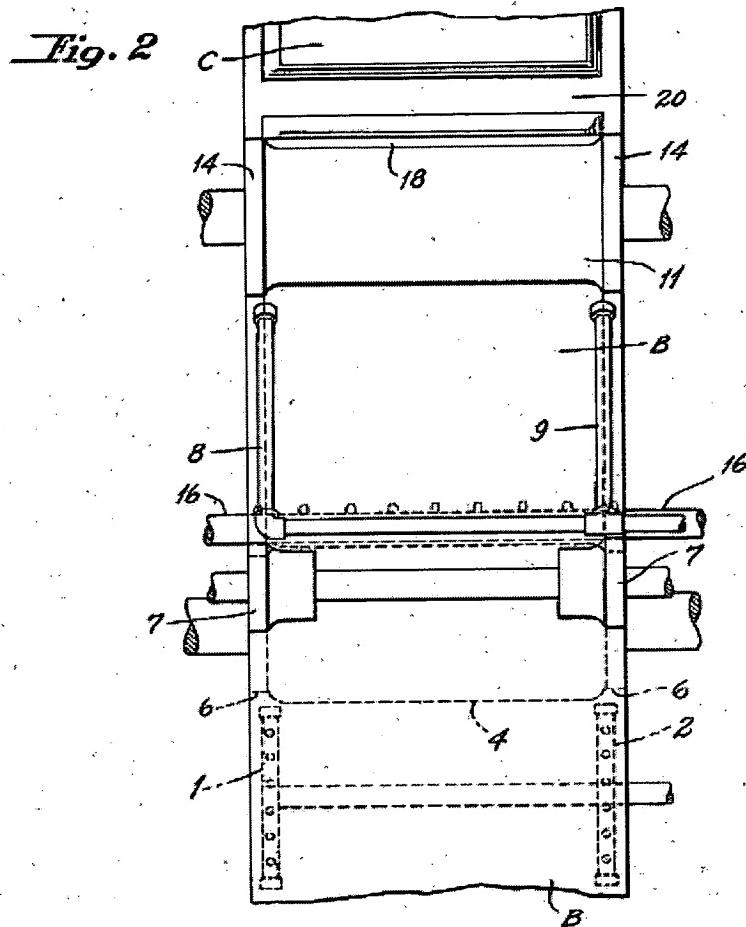
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danner (1,674,856) in view of Aurien (2,116,297). Specifically, Danner teaches all of the elements of Claim 1 including that the rolls (23), previously indicated as equivalent to the "a device or mechanism for controlling glass travel speed (7,8)", obviously control the thickness of the glass sheet. Danner fails to indicate that said rolls (23) control the thickness of the sheet of glass as claimed. Aurien teaches a similar roll structure (4,5) with cut away portion (6) as indicated by the excerpt figure below and which is formed to accommodate the side edges of the glass sheets" (pg 1, column 2, lines 22-29). This device is designed inwardly crimp the edges of the formed glass sheet and is likewise understood to control the width of the sheet of glass. It would be obvious to one of ordinary skill in the art at the time of the invention to replace the rolls (23) of the Danner invention with the similar roll device (4,5,6) as taught by Aurien in order to produce a sheet of glass with crimped edges and thereby inherently control the width of said glass sheet.



With respect to Claim 10 and in light of the rejection of Claim 3 above, the rejection of Claim 2 indicated that the "treatment device or mechanism (4a)" provided guidance for the glass sheet and the rejection of claim 8 above set forth that the air blast nozzle (14) cooperated with said "treatment device or mechanism (4a) to impart a controlled cooling or "temperature control" to the sheet. Therefore it is understood that

the guidance of the treated stream of glass (1a') is implemented under temperature control.

Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danner (1,674,856) as applied to Claim 1 above and in further view of Anderson (6,196,026). With respect to the immediate Claims, Danner fails to explicitly indicate a preferred viscosity of the stream of glass (1a) as delivered to the process. Anderson presents a process wherein sheets of glass are delivered to a substrate with the goals of first conforming said sheets to a mold surface and second achieving a hermetic seal between said sheets. To this end, Anderson indicates (column 3, Lines 51-59) that;

“The viscosity of the molten glass ribbon at delivery is between about 1000 to 5000 poise so that the following is achieved: (1) the second length of the molten glass ribbon bridges, but does not sag into complete contact with the entire surface of the (mold)”

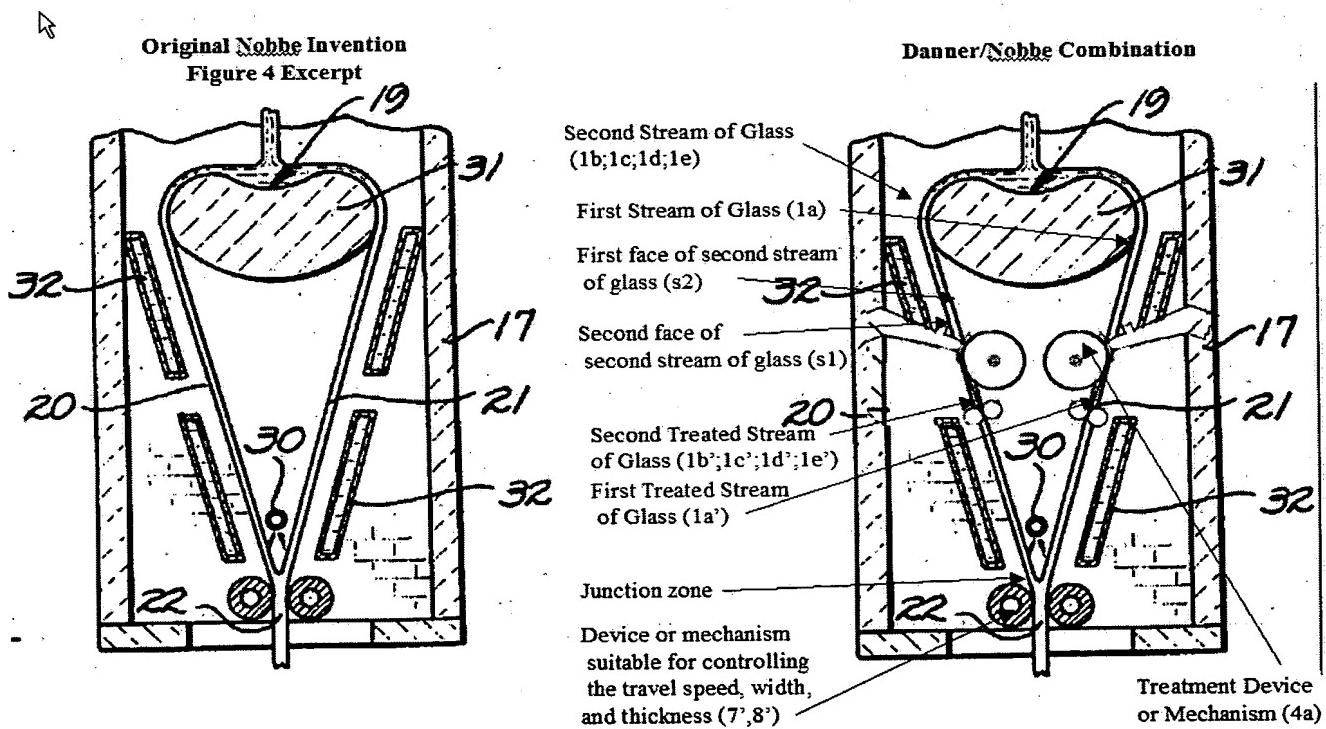
It would be obvious to one of ordinary skill in the art to deliver the sheets of glass in the Danner process in the same viscosity range as taught by Anderson in order to achieve a high fidelity impression on the “treatment device or mechanism (4a)” or roller (10) as indicated by Danner (pg 1, lines 57-65).

Claims 14 through 18, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Danner (1,674,856) in light of Nobbe (1,731,260).

Specifically, Danner teaches all of the elements of Claim 1 as indicated above, however said reference fails to explicitly indicate the introduction of a second stream into the process for treatment and lamination to the first delivered and treated stream.

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Nobbe broadly teaches of a method for the continuous production of glass sheets from molten glass wherein films of glass flow downward from a molten source while remaining substantially free from contact until being joined or laminated in a junction zone. The following two figures indicate the invention according to Nobbe Figure 4 and the obvious combination of inventions from Danner in view of Nobbe which will be described below. The combination image has been annotated for reference and clarity in the context of the presently claimed invention and will be referenced as such. It is further understood that while the combined invention as depicted applies the Danner invention both the first delivered stream of glass and second delivered stream of glass, said teachings could obviously be incorporated individually to either of the two streams and to the exclusion of the other.



Specifically, the above combination teaches:

1. Delivering "a second stream of glass (1b, 1c, 1d, 1e)" which by virtue of existing in the same process is understood to be compatible with the first stream of Glass (1a) . The second stream of glass (1b, 1c, 1d, 1e) has a first face and second face (s1, s2) as indicated above. Both of first and second faces of both the first delivered stream and second delivered stream are held free from contact with any surface from their formation in the region of the slab (31) and the treatment device (4a).
2. The second delivered stream of glass (1b, 1c, 1d, 1e) is treated by contact with the treatment device or mechanism (4a) in the same manner as outlined for the stream of glass (1a) in the rejection of Claim 1 above.
3. The first and second treated streams of glass are guided towards a junction zone. Said guidance of the first treated stream is provided while ensuring that at least the central strip of the second face of the first treated stream is kept free from contact with any surface in the manner as discussed in the rejection of Claim 1 above.
4. First and second treated and guided streams are joined via the first face of the of the first treated stream of glass that has come into contact upstream with said treatment device or mechanism 4a while the second face of first stream remains relatively free from contact with any surface. Further, device or mechanism (7', 8') is applied to said two joined together streams of glass.

It would be obvious to one of ordinary skill in the art to modify the Nobbe process by the inclusion of the apparatus and process as set forth by Danner. This combination would be obvious to one attempting to form a sheet of glass with an impression in its interior volume while maintaining a high quality unmarred exterior surface.

With respect to Claim 15, Danner indicates that as the sheet passes down and around the roll the sheet takes the impression of the roll (pg 2, Lines 66-73). This disclosure by Danner is understood to encompass a method wherein the treatment of the second delivered stream of glass (1c) includes rolling or laminating, implemented with or without transferring an imprint" as claimed.

Claim 16 is obvious in light of the rejection of Claim 15 above.

Claim 17 is obvious in light of the arguments set forth in Claim 14 and Claim 1 above, and wherein the joined sheet of glass is cooled by any one of the means well known and commonly practiced in the art.

Claim 18 is obvious in light of the rejection of Claim 15 above

Claim 20 is obvious in light of the objection to Claim 14 above wherein the two sheets of glass are delivered from a single source indicated by (19) in the combined figure

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Danner-Nobbe as applied to Claim 14 above, and further in view of Gelstsharp (1,934,798). As indicated in Claim 14 above, Danner-Nobbe teaches a method comprising

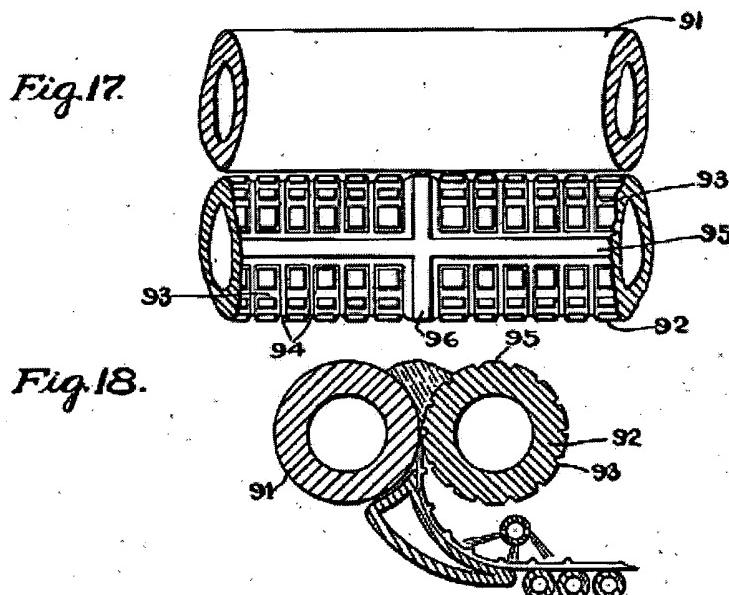
1. Delivering two compatible streams of glass each of which has a first and second face free from contact after formation

2. the first stream treated by placing a first face into contact with a treatment device or mechanism capable of temporarily supporting its weight and accompanying its falling movement while increasing its viscosity and while maintaining at least the central strip of the second face free from contact with any surface
3. Treating a second stream as per the first stream
4. Guiding both of the treated streams of glass towards a junction zone while ensuring that the central strip of the second face of the first treated stream of glass is kept free from any contact and while ensuring that the central strip of the second face of the second treated stream of glass is also not put into contact with any surface
5. Joining the two treated streams of glass together via their respective first faces which have come into contact with the treatment device or mechanism and wherein the second face of the first steam remains relatively free from contact with any surface
6. Acting on the joined together treated streams of glass by a device or mechanism
7. cooling the glass sheet

Danner-Nobbe fails to indicate that the second stream of the two streams should be treated by subjecting the second face of the second stream of glass to an action by another device or mechanism which, co-operating with the treatment device or mechanism serves to transfer an imprint onto said second face. Gelstharp teaches (see

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figure 17 and 18 below) of a cooperating set of devices which serve to transfer an imprint to one side of a sheet of glass. It would be obvious to incorporate the cooperating devices as taught by Gelstharp in lieu of or in addition to the airblast nozzle (14) in treating the second sheet of glass in order to obtain a patterned surface on the exterior surface of the produced sheet of glass.



Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Lazorcik whose telephone number is (571) 272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JLL



STEVEN P. GRIFFIN

SUPERVISORY PATENT EXAMINER

TECHNOLOGY CENTER 1700